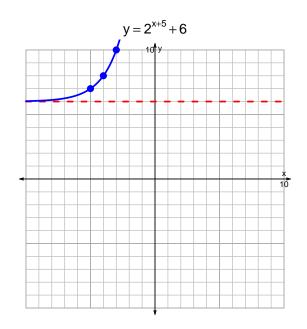
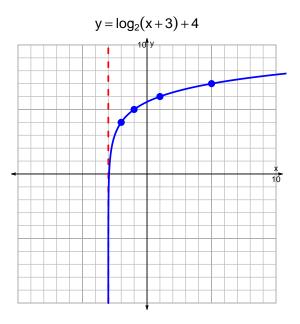
s18quiz: EXP LOG (Solution v116)

1. Graph $y=2^{x+5}+6$ and $y=\log_2(x+3)+4$ on the grids below. Also, draw any asymptotes with dotted lines.





2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$11 = \left(\frac{7}{5}\right) \cdot 10^{-3t/4}$$

Divide both sides by $\frac{7}{5}$.

$$\frac{11 \cdot 5}{7} = 10^{-3t/4}$$

Take log, base 10, of both sides.

$$\log_{10}\left(\frac{11\cdot 5}{7}\right) = \frac{-3t}{4}$$

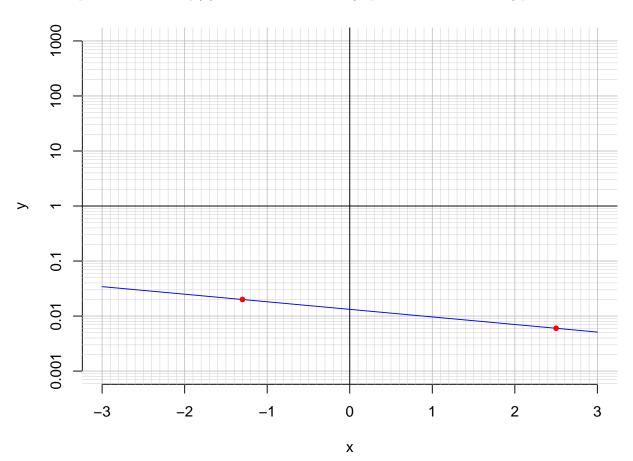
Divide both sides by $\frac{-3}{4}$.

$$\frac{-4}{3} \cdot \log_{10} \left(\frac{11 \cdot 5}{7} \right) = t$$

Switch sides.

$$t = \frac{-4}{3} \cdot \log_{10} \left(\frac{11 \cdot 5}{7} \right)$$

3. An exponential function $f(x) = 0.0132 \cdot e^{-0.317x}$ is graphed below on a semi-log plot.



a. Using the plot above, evaluate f(-1.3).

$$f(-1.3) = 0.02$$

b. Express $f^{-1}(x)$, the inverse of f.

$$f^{-1}(x) = \frac{-1}{0.317} \cdot \ln\left(\frac{x}{0.0132}\right)$$

c. Using the plot above, evaluate $f^{-1}(0.006)$.

$$f^{-1}(0.006) = 2.5$$